

REMARKS

I. OBJECTIONS TO DRAWINGS ARE OVERCOME WITH PROPOSED DRAWING CORRECTIONS

The drawings were objected to for several reasons in the Office Action, including the alleged absence of designation by reference number of each element in the drawing, a misspelling of "reference control" in Fig. 5, and the inclusions in Fig. 1 of arrows in a flow chart which appear to have no origin.

According to the procedure for correcting drawings set forth in Attachment for PTO-948 attached to the Office Action, Applicants enclose copies of Figures 1, 2, 4 and 5 with proposed drawing corrections indicated in red ink for the Examiner's kind consideration. Applicants request an indication that the proposed drawing corrections are approved to enable Applicants to have corrected drawings prepared by a draftsman. Applicants wish to thank the Examiner for a short telephone interview with their undersigned Counsel on March 18, 2003. Applicants asked the Examiner to confirm their understanding that the written legends need not be removed from the Figures, and that only each element shown in the Figures, discussed in the specification, needs to be labeled with a reference numeral. The Examiner confirmed that this would overcome objections to the drawings.

Applicants also amended the text of the specification to make it consistent with the drawing corrections. Applicants submit that the drawing corrections and amendments of the specification overcome all objections to the drawings. Applicants would appreciate an indication from the Examiner that such corrections and amendments overcome the objections.

II. OBJECTIONS TO SPECIFICATION ARE OVERCOME

The abstract was objected to because it included the word "means." While Applicants respectfully submit that the original Abstract satisfied all statutory and formal requirements, in the interest of expediting prosecution, they amended the Abstract by deleting the word "means."

Applicants also appreciate the Examiner's careful review of the application and pointing out a misspelling on p. 20, line 33, which has now been corrected.

III. OBJECTIONS OF CLAIMS ARE OVERCOME

Claims 1, 32, 37, 49, 61, 66, 78 and 92 were objected to primarily because of minor misspellings and informalities. Applicants appreciate the Examiner pointing out such misspellings and informalities and they have corrected them. The relatively minor amendments of the claims necessary to correct such informalities and misspellings overcome all claim objections.

IV. CLAIMS 1-93, AS FILED, WERE DEFINITE. AMENDED CLAIMS CONTINUE TO SATISFY THE REQUIREMENTS OF 35 U.S.C. §112, SECOND PARAGRAPH

Applicants initially submit that their claims, as originally filed, satisfied all the requirements of 35 U.S.C. §112, second paragraph in spite of contrary assertions in the Office Action. For example, in the Office Action it was stated that claims 4 and 52 recited a "proportional milk sample" but it was allegedly unclear what the sample was proportional to. Office Action, p. 6. It is well established that claims may be interpreted in view of the specification from which they originated. The specification defines that term at p. 10, line 8; thus, the original claims 4 and 52 were definite. Nonetheless, in the interest of expediting prosecution, Applicants amended the claims, when warranted, to address certain informalities, such as a lack of antecedent basis identified in the Office Action.

Applicants also disagree with the identification of some of the alleged informalities. For example, it was stated in the Office Action that the limitation "the means for storing a milk sample" in claim 56, lacks an antecedent basis. Applicants respectfully point that out that the antecedent basis for this limitation is found in claim 54, from which claim 56 depends. Other basis for this rejection are discussed in detail below.

Claims 1-93 were rejected under 35 U.S.C. §112, second paragraph, allegedly as being indefinite for failing to particularly point out and distinctly claim the subject matter regarded by Applicants as their invention. It was explained that the claims use

means-plus-function limitations without providing a corresponding disclosure of specific structures or materials for every limitation, as exemplified by “means for detecting signals.” According to the text of the Office Action, the specification simply states that “conventional means” for detecting signals may be used. Additional examples of such allegedly non-conforming recitations of the means-plus-function limitations are “means permitting the sample collecting means to be cleaned between samples,” “means for storing a buffer solution or a dilute solution” and “means for controlling the temperature of the milk sample being collected.” Applicants were advised that they must describe at least one specific structure or material which corresponds to the claimed means and to identify the precise location or locations in the specification where a description of at least one embodiment of that claimed means can be found. Office Action, pp. 3-4.

Applicants respectfully traverse this rejection. Applicants respectfully submit that the specification need not describe that which is well-known in the art. Applicants’ indication that “any conventional means” for detecting the analytical signals as covered by the invention (p. 17, lines 39-40) indicates that, at the time they filed their application, they contemplated any such conventional means. Additionally, Applicants buttress this disclosure by exemplifying such means as including “...a detector or test reader..., such as a CCD camera or other photometry equipment...” See, e.g., p. 25, lines 17-18. Furthermore, in the generic disclosure of the means for detecting analytical signals, Applicants stated that the signals to be detected are in the form of “intensity, frequency, colour, number, etc.” See p. 17, line 37.

Similarly, the means for collecting a sample from an individual member of the herd is exemplified as a “physical connection between the milking points and the analysing means”, see p. 9, lines 31-32, but it need not be a direct physical connection with the analysing means, p. 9, lines 36-37. The sample collecting means may also comprise a means for storing a milk sample being collected, and it is exemplified by a container connected to the general milking system line. See p. 10, lines 14-16.

The means for recognizing the identification code of the individual herd member is exemplified by bar codes, “or other electronic signal types generated by electronic devices, such as radio transmitters, assigned to each individual member of the herd.” See p. 9, lines 24-26.

Means for permitting the sample storage (or collecting) means to be cleaned between samples is exemplified by milk, air, water, detergent solutions or their combinations. See p. 10, lines 35-36.

Means for storing the buffer solution or dilute solution, means for controlling the temperature of the milk sample being collected may include any device well known in the art. It is well established that a means-plus-function claim limitation is satisfied if disclosure of a structure is implicit in the specification so that it would have been clear to those skilled in the art what structure can perform the function of the claims. *See, e.g., Amtel Corp. v. Information Storage Devices Inc.*, 53 U.S.P.Q. 2d 1225, 1228 (Fed. Cir. 1999), and MPEP § 2181.

Similarly the signal processing means can be any known means, such as the exemplified computer program executable on a computer system including an embedded software. See, p. 18, lines 19-24. The means for storing data descriptive of the physiological and/or nutritional condition of the individual herd member can be any known suitable implement, such as magnetic and optical media, including tapes, disks, flash and CD-ROMS. See p. 18, lines 33-35. The output means for the data, while generally being any suitable such means, is exemplified by print, visual and/or auditive means, such as telephones and mobile telephones. See p. 19, lines 1-3.

Persons skilled in the art would readily appreciate from the entire specification, as exemplified by the aforementioned specific passage, the nature of various means contemplated by Applicants at the time the application was filed.

IV. REJECTIONS UNDER 35 U.S.C. §103

Claims 1-93 were rejected as being obvious in view of several cited patents discussed *infra*. Applicants traverse this rejection on several grounds.

To begin with, the problem solved by the Applicants' claimed invention is to provide an automated or semi-automated system, apparatus and a method for optimizing the production performance of a milk producing animal herd comprising a plurality of individual herd members wherein the system or the method is capable of determining (or determines) the point in time for performing a subsequent analysis. This optimized production performance is obtained by analyzing the physiological and

nutritional state of a sample from each individual herd member. Subsequently, the result of the analysis is used to determine a specific point in time for obtaining and analyzing a subsequent sample.

Furthermore, the production performance monitoring system, apparatus and the method are designed in such a way that an individual milk sample collected at a given point in time is only analyzed for compounds or parameters that need to be analyzed at the particular point in time to optimize the production performance of the particular herd member or the particular group of herd members. For example, the analysis may only be activated at pre-selected points in time or at pre-selected time intervals in the reproduction or lactation cycles. Thus, the system, apparatus and method according to the Applicants' invention, provide a significant reduction in costs of analyzing milk samples due to the avoidance or the limitation of superfluous analysis.

Regarding the obviousness rejections based on the combinations of the cited references, Applicants submit that the combination of Bazin *et al.*, U.S. Patent 5,743,209, and Van der Berg *et al.*, U.S. Patent 5,873,323, does not teach or suggest the use of or the result of the analysis for determining a specific point in time for obtaining and analyzing a subsequent sample. Bazin *et al.* disclose an automated system for controlling quantity and quality of milk production. The system comprises a means for recognizing a herd member, means for collecting a milk sample from the herd member, means for analyzing a plurality of parameters in the sample, means for generating a detectable signal, means for detecting the generated signal and means for storing data connected to the particular herd member. However, Bazin *et al.* do not disclose an intelligent system capable of determining the pre-selected point in time or pre-selected time intervals for performing a subsequent analysis. Bazin *et al.* also fail to suggest determination of the pre-selected point in time or pre-selected time interval based on the detection of a monitored change in a compound or parameter for a member of an animal herd, which indicates an abnormality in the physiological or nutritional state of the member of the herd. E.g., see claims 107-110.

Likewise, Van den Berg *et al.* disclose a milking system comprising means for directing milk samples to analyzing means at pre-selected time intervals. The pre-selected time interval disclosed by Van den Berg *et al.* relates to the time interval

beginning when a teat cup is connected to a teat and ending when the flow of milk from this teat starts, also called the dead time (column 3, lines 35-37) and corresponds to a predetermined historical value for the particular animal. The dead time is used as an indicator of whether the animal is in estrous or ill (column 4, lines 1-14). Thus, the predetermined historical value is used only as a reference value for determining the physiological state of the animal and not for determining the point in time for performing a subsequent analysis.

Additionally, the patents of Van der Lely *et al.*, U.S. 5,194,456; Bjork *et al.*, Swedish Patent No. 990297 2; Mortensen, U.S. 4,385,590; Postma *et al.*, WO 99/18774; Pugh, U.S. 6,311,644 and references of Mottram were relied upon for the rejection of the dependent claims under 35 U.S.C. § 103. However, Applicants submit that none of these citations teaches, discloses or suggests the use of the result of the analysis for determining a pre-selected specific point in time or time interval for obtaining and analyzing a subsequent sample. These patents also do not suggest the determination of the pre-selected point in time or pre-selected time interval based on the detection of a change in a compound or parameter for a member of an animal herd, indicative of an abnormality in the physiological or nutritional state of the herd member.

In sum, Applicants submit that none of the cited documents solves or suggests a solution of the problem which has been solved by the present invention. A person having ordinary skill in the art would not have found obvious Applicants' claimed invention from the teachings of any of the cited documents or any combinations thereof without the benefit of hindsight provided by Applicants' specification. The use of hindsight in unobviousness analysis is improper as a matter of law.

Therefore, the claimed invention is patentable in view of the cited documents under the requirements of 35 U.S.C. §103 for all the reasons set forth above.

V. THE ART OF RECORD NOT RELIED UPON

In the Office Action, two references were cited as the art of record not relied upon, which was considered pertinent to Applicants' disclosure. The two references are Berk, U.S. Patent 6,394,028, and De Mol *et al.*, U.S. Patent 6,405,672. Applicants' preliminary review of these two references appears to indicate that they do not

anticipate or render obvious Applicants' claimed invention. Applicants reserve the right to provide detailed discussion of these references if they are applied to Applicants' claims.

VI. REQUEST FOR ALLOWANCE

It is submitted that all claims are in condition for allowance, an indication of which is solicited. In the event that any issues remain outstanding, Applicants would appreciate the courtesy of a telephone call to the undersigned counsel to resolve such issues in an expeditious manner and place the application in condition for allowance.

In the event that any additional fees are necessary, the Commissioner is hereby authorized to charge our Deposit Account No. 50-0206.

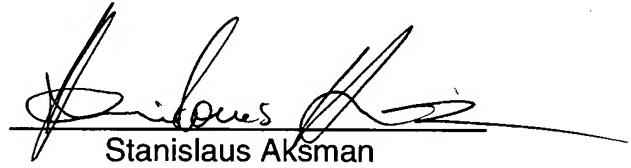
Respectfully submitted,

HUNTON & WILLIAMS

Date: May 16, 2003

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Title of Invention: System For Optimising The
Production Performance Of A Milk Producing Animal
Herd
Inventor's Name: Fei CHEN et al.
Application No.: 10/091,782
Attorney Docket No.: 60589.000004
Page 1 of 5

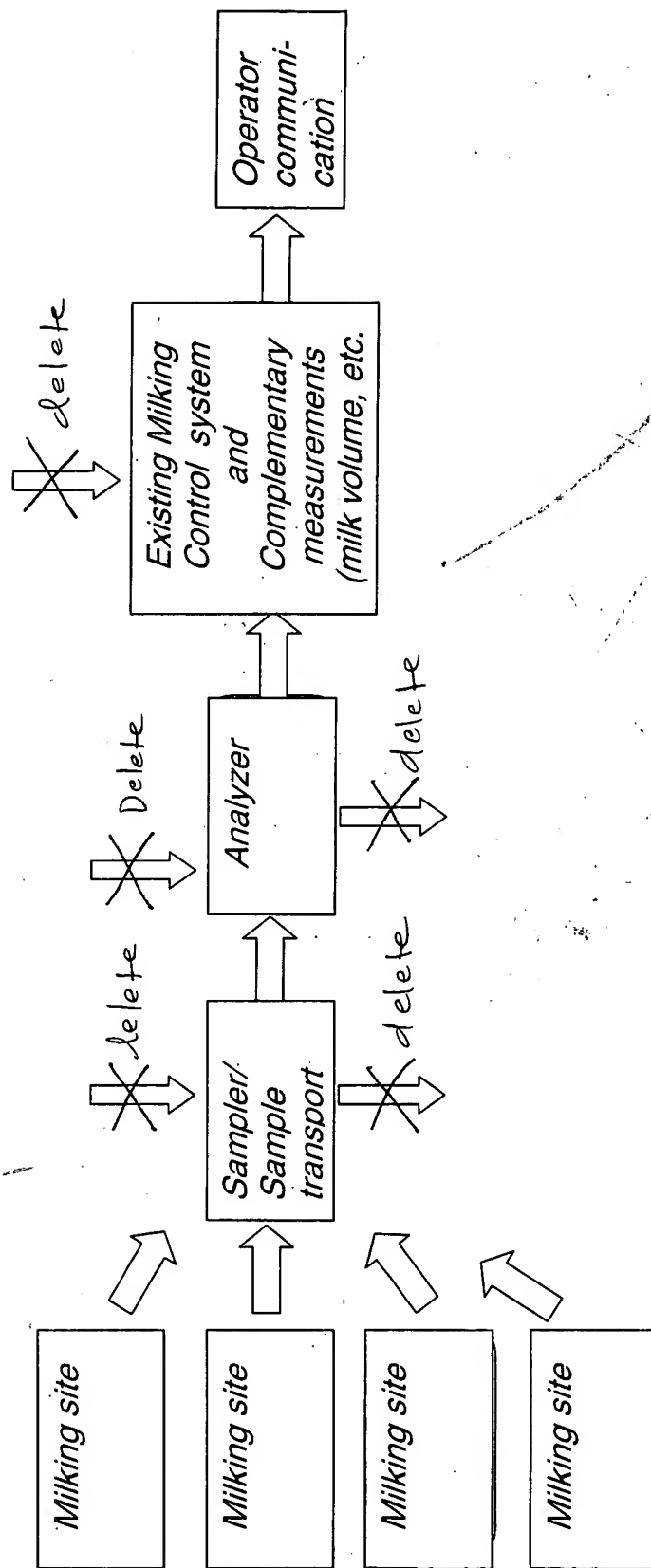


Fig. 1

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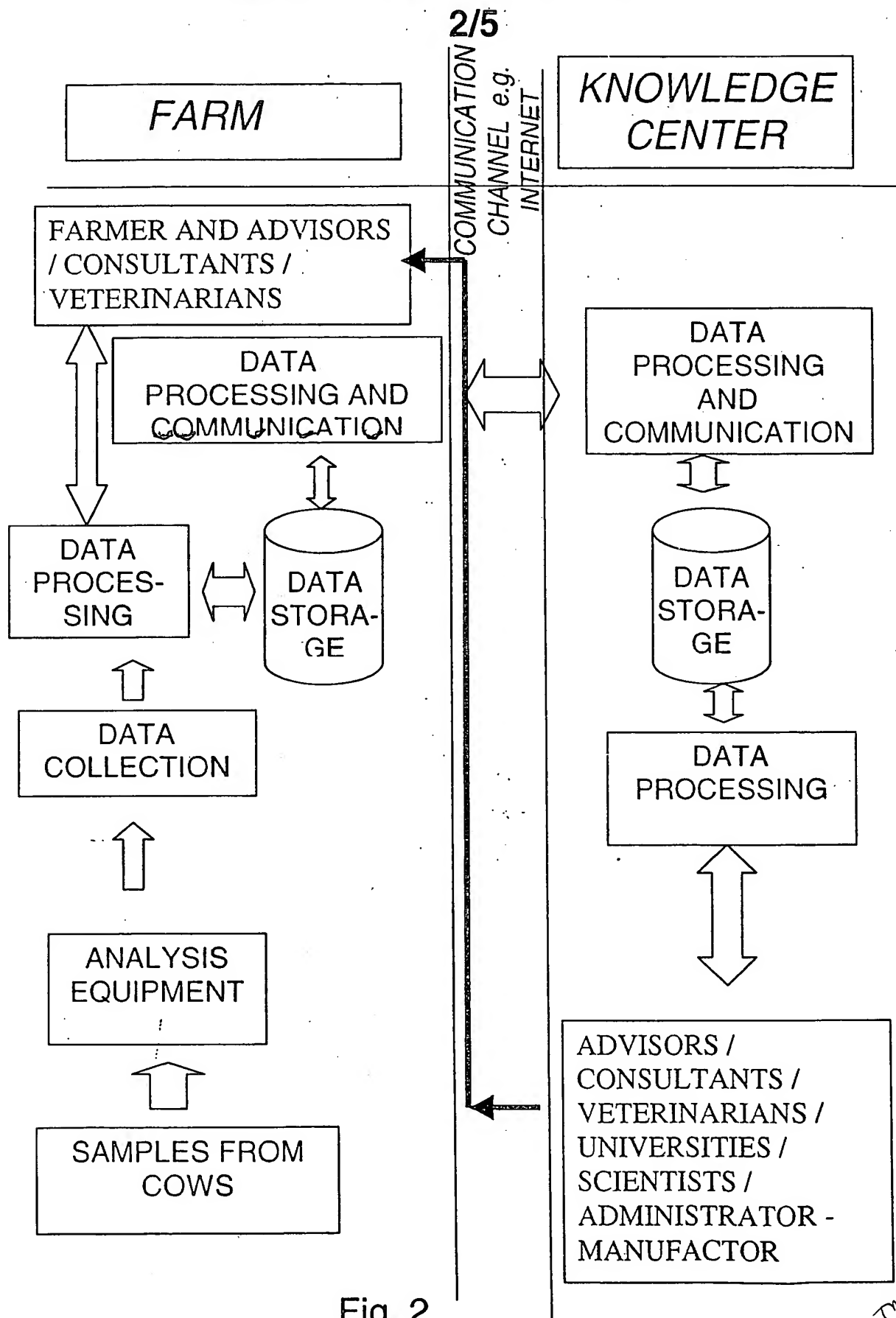


Fig. 2

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Title of Invention: System For Optimising The
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 Herd
 Inventor's Name: Fei CHEN et al.
 Application No.: 10/091,782
 Attorney Docket No.: 60589.000004
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Sheet 4 of 5 (Fig. 4); Application Title: SYSTEM FOR OPTIMISING THE PRODUCTION PERFORMANCE OF A MILK
 PRODUCING ANIMAL HERD; First Named Inventor: Fei CHEN; Application Serial No.: Not Yet Assigned; Attorney Docket
 No.: 25928 US 02

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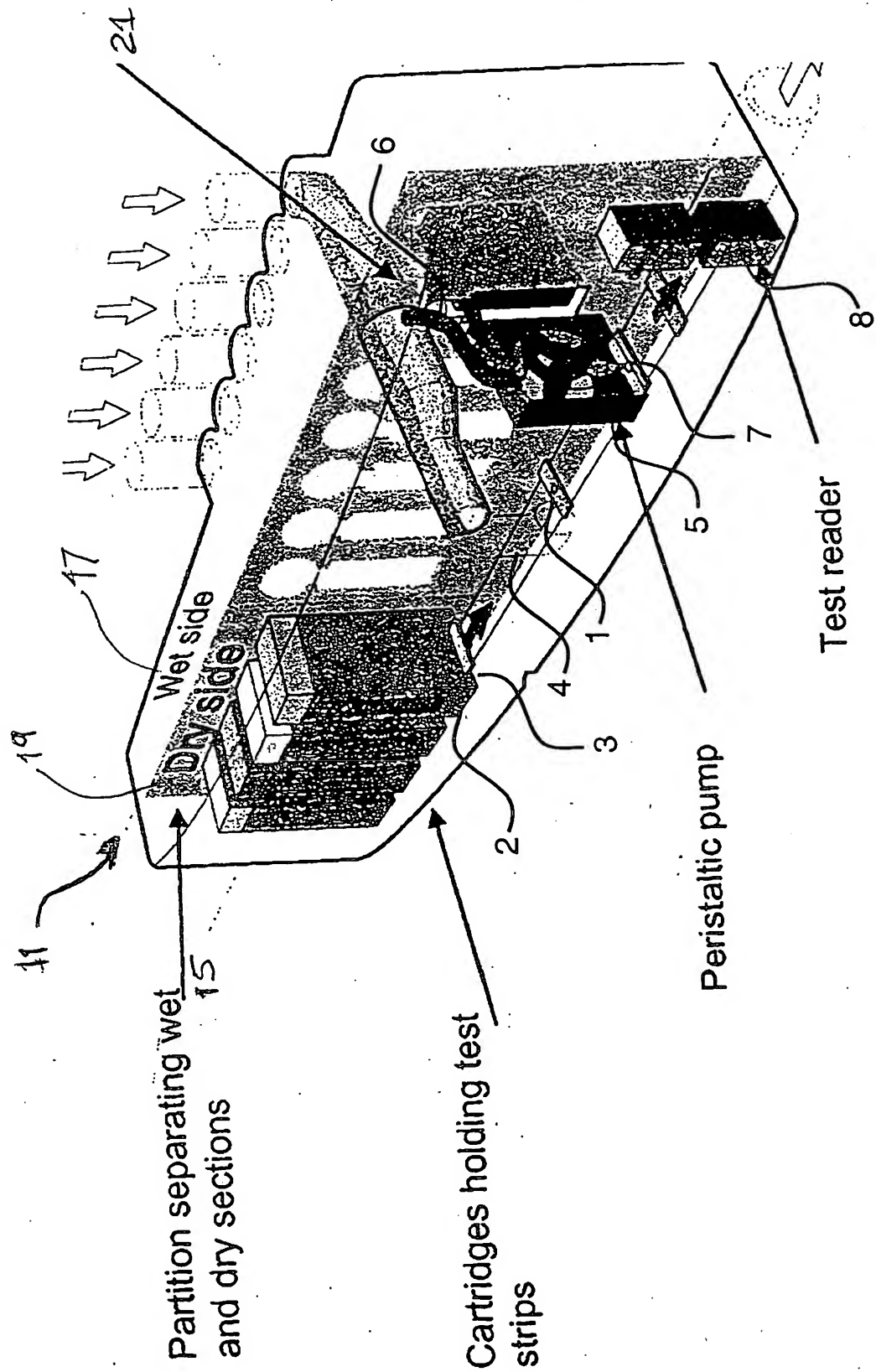


Fig. 4

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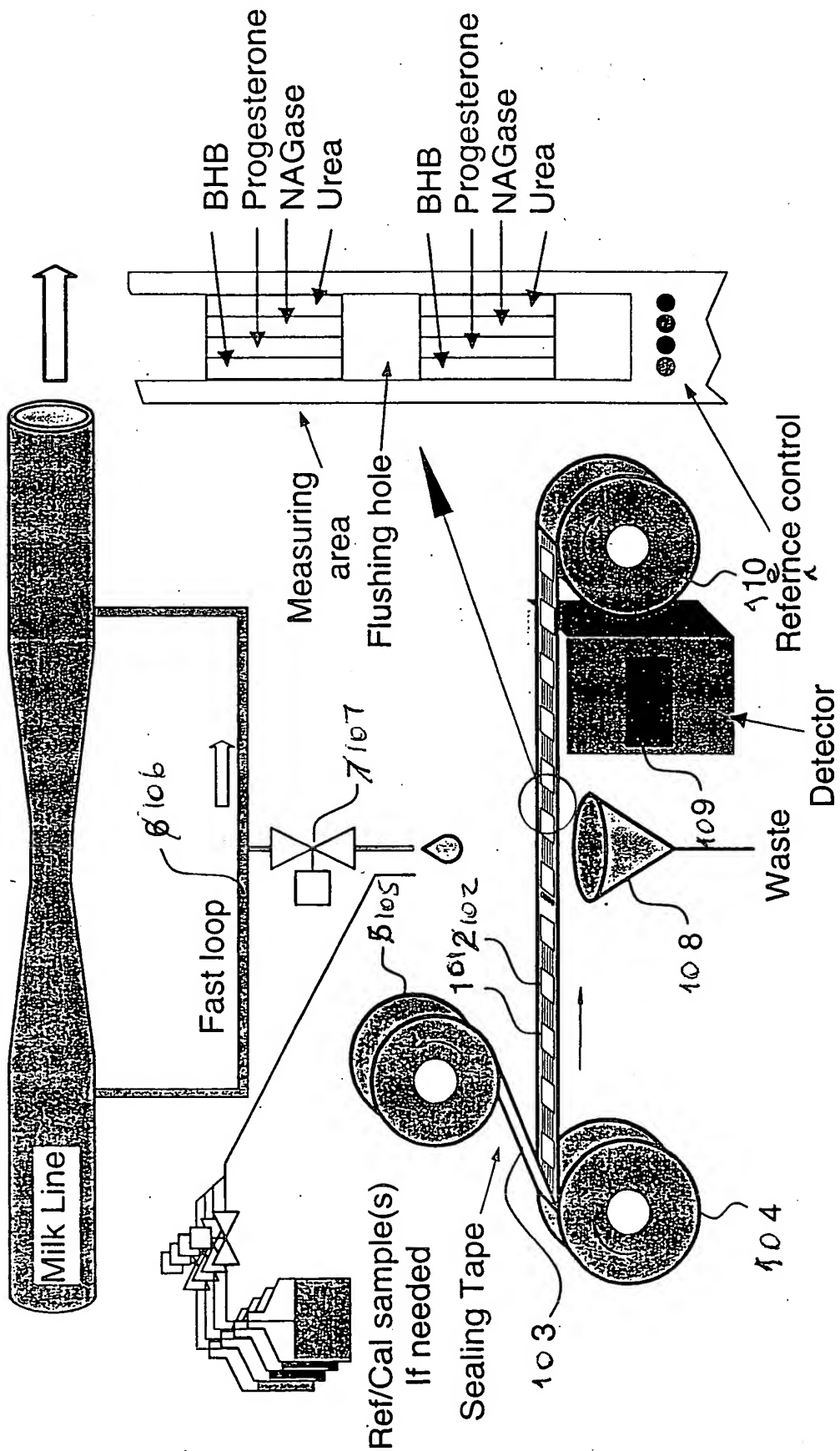


Fig. 5

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